Amended claims:

1. Method for measuring an electrical voltage, wherein the electrical voltage is an alternating quantity, making use of at least one sensor element (20) and evaluating means (30) by utilizing the Pockets effect and using at least one light source (31) and at least one optical transmission path (OS), wherein a measurement light generated by the light source (31) penetrates an active sensor part (21) comprising at least two sensor crystals at which an electrical voltage drops, and, after the measurement light has traversed the sensor crystals, the polarization state of the measurement light is further used for processing information which, after suitable evaluation, represents a measurement for the electrical voltage dropping over the sensor crystals, wherein the selected quantity of sensor crystals on the measurement path is sufficiently large with respect to the inhomogeneity of the electrical field distribution, and the length of the measurement path is in the same order of magnitude as the length of the path along which the voltage to be measured drops, wherein the evaluating means (30) is used with a corresponding component assembly (40) by means of which the scaling is carried out by multiplying the input signal by a factor which is generated by a function unit, its input quantity representing the difference between a reference signal and the factored output signal, and wherein the function unit provides integration.

9. Device for measuring the electrical voltage, wherein the electrical voltage is an alternating quantity, and with at least one light source (31) and at least one optical transmission path (OS), at least one sensor element (20) and evaluating means (30) accompanied by the use of the Pockels effect, wherein the sensor element (s) (20) contain(s) at least one active sensor part (21) comprising at least N_{SK} (N_{SK} is greater than or equal to zero) electro-optical sensor crystals ($SK_1...SK_N$) which are penetrated by a polarized measurement light, wherein the evaluating means (30) contain at least one component assembly (40) by means of which the scaling is carried out by multiplying the input signal by a factor which is generated by a function unit, its input quantity representing the difference between a reference signal and the factor input signal, and wherein the function unit is an integrator.